

REMARKS**Summary of the Office Action**

The Specification stands objected to for informalities in the Abstract and the Description of the Drawings.

Claims 1 and 2 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,014,727 (*Aigo*) in view of Japan 55-180425 (JP '425).

Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Japan 2001-328069 (JP '069) in view of JP '425.

Claims 1, 4, 6, and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over JP '425.

Claim 33 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over JP '069 in view of JP '425, and further in view of U.S. Patent No. 4,832,941 (*Berwing*).

Summary of the Response to the Office Action

Applicants amend the specification to correct the informalities noted in the Office Action.

Applicants withdraw claims 7-32 and 34-38, and amend claim 1. Support for the amendment to claim 1 is found at least in FIG. 5 and paragraphs [0010] and [0014] of the published application.

Accordingly, claims 1-6 and 33 are presently pending for consideration.

The Objections to the Specification

The Specification stands objected to for informalities in the Abstract and the Description of the Drawings. Applicants have amended the Abstract and Description of the Drawings in accordance with the comments of the Office Action. Accordingly, Applicants respectfully request that the objections to the Specification be withdrawn. Applicants further submit that the amendments to the Abstract and Description of the Drawings do not narrow

the scope of the claims, and therefore, Applicants do not intend to relinquish any subject matter by these amendments.

The Rejections under 35 U.S.C. § 103(a)

Independent claim 1 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,014,727 (*Aigo*) in view of Japan 55-180425 (JP '425), as allegedly unpatentable over Japan 2001-328069 (JP '069) in view of JP '425, and finally, as allegedly unpatentable over JP '425 by itself. Applicants respectfully disagree, and traverse these rejections for at least the following reasons.

Simply put, none of the cited references teaches or suggests nanobubbles. As the Office Action admits on page 4, both *Aigo* and JP '069 are silent about the size of the bubbles. To fix this acknowledged deficiency, the Office Action looks to JP '425, both alone and in combination each primary reference. For each rejection the Office Action states:

Since nanobubble is defined as a bubble having a diameter in nanometer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of *Aigo* by providing bubbles having a diameter in nanometer as inspired by JP 55-1 80425 to increase cleaning effectiveness.

Office Action at 4 and 5.

▸ This is incorrect. JP '425 lacks any teaching or suggestion of nanobubbles. JP '425 is a reference published in 1979. It is improper to use a reference from 1979 to teach or suggest nanobubbles. As Applicants state in their published specification at paragraph [0004], "in the conventional technique, there has been no method for confirming the presence of such bubbles." Furthermore, "the existence of the nanobubbles is [sic – was] mere speculation. Even if it is supposed that the nanobubbles are present, it has not been solved whether or not the characteristics of the nanobubbles are extended from those of the microbubbles." Application at [0006]. Applicants also submit for the Examiner's consideration a published document titled "Cleaning Effect of Nano-Bubbles (1st Report: Minute Particle

Contamination)” with an Information Disclosure Statement and PTO-1449 submitted concurrently herewith.

At best, then, the Office Action takes Official Notice of the existence of nanobubbles in JP ‘425, which is contrary to MPEP 2144.03. As the MPEP states, Official Notice is only proper for facts beyond the record that are “capable of such instant and unquestionable demonstration as to defy dispute.” *Id.* Accordingly, Applicants request allowance of the claims or, in the alternative, a new non-final Office Action with a reference disclosing nanobubbles.

Even in JP ‘425 taught or suggested nanobubbles (which Applicants submit it does not), claim 1 as amended recites “[a] cleaning method utilizing nanobubbles, which comprises cleaning an object with water comprising nanobubbles generated by a cavitation by ultrasonic wave.” JP ‘425 teaches the exact opposite – using bubbles to promote the generation of an ultrasonic wave. *See* JP ‘425 at 2.

Applicants note that the Office Action does not rely on any of the other cited references, alone or combined with JP ‘425, to correct the deficiencies noted above. Moreover, Applicants respectfully submit that none of the cited references can remedy these deficiencies. Accordingly, Applicants respectfully assert that the rejections under 35 U.S.C. § 103(a) should be withdrawn because each reference, alone or combined, fails to provide any reason that would prompt one of ordinary skill in the relevant field to combine elements of the prior art in the way the claimed invention does in amended independent claim 1. Furthermore, Applicants respectfully assert that dependent claims 2 – 6 and 33 are allowable at least because of their dependence from claim 1, and for the reasons set forth above.

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CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the Response, the Examiner is invited to contact the Applicants' undersigned representative to expedite prosecution.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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